

REMARKS

In view of both the amendments presented above and the following discussion, the Applicant submits that none of the claims now pending in the application is either anticipated under the provisions of 35 USC § 102 or obvious under the provisions of 35 USC § 103. Thus, the Applicant believes that all of these claims are now in allowable form.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, the Examiner should telephone Mr. Peter L. Michaelson, Esq. at (732) 542-7800 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Specification and abstract amendments

Various amendments have been made to the specification to correct minor inadvertent grammatical, typographical, punctuation and formal errors.

A substitute specification is submitted herewith. The substitute specification introduces no new matter into the application. Moreover, in accordance with the provisions of M.P.E.P. Section 608.01(q), the Applicant has also enclosed a "marked-up" copy of the original specification. The substitute specification contains the same changes that are shown in the marked-up copy of the specification.

The Applicant has also provided a replacement abstract that remedies various minor errors and also more precisely summarizes the present invention than did the abstract, as filed.

Status of claims

To simplify amending the claims and hence expedite their examination, the Applicant, rather than re-writing the claims with, in some cases, extensive amendments, has simply canceled all the prior pending claims 1-13 and substituted new claims 14-25 therefore.

The new claims have been drafted to provide enhanced clarity over the prior claims and particularly, with respect to new independent claims 14 and 23, defining the invention with increased precision. The new claims have also been drafted to conform to the dictates of proper US claim practice.

To facilitate examination, the following table shows the correspondence between the prior claims and those now pending.

Present Claim	Prior Claim	Present Claim	Prior Claim	Present Claim	Prior Claim
14	1	18	6	23	11
15	2	19	7	24	12
16	3	20	8	25	13
none	4	21	9		
17	5	22	10		

Rejections

A. Rejection under 35 USC § 102

The Examiner has rejected prior claims 1-6 and 8-13 under the provisions of 35 USC § 102(b) as being anticipated by the teachings of the 39506 Gresh application (International patent application WO 01/39506 published on May 31, 2001). Inasmuch as all these claims have now been canceled, this rejection is moot. Nevertheless, since these claims have been replaced by new claims 14-18 and 20-25 (with exception of claim 4 for which no corresponding dependent claim presently exists), this rejection will be discussed in the context of the new claims, and principally with respect to new independent method claim 14. In that context, this rejection is respectfully traversed.

Specifically, the Examiner takes the position that the 39506 Gresh application discloses all the features recited in prior independent claim 1. As the Examiner will soon appreciate, this conclusion is incorrect with respect to new independents claim 14 (as well as new claim 23).

Generally speaking, the 39506 Gresh application describes a system that allows a large number of users to participate, on-line, in broadcast television programs.

As shown in FIGs. 1 and 2 and described in page 5, line 22 et seq of that application, the system involves centrally located multi-user server 111 which is connected, via the Internet, to Internet-enabled client 109, such as a personal computer, used by each television viewer 108. The

viewer also has a program receiver, e.g., a television, 107 which receives a broadcast program. Device 109 executes client application 412 (see Fig. 4) through which corresponding viewer 108 can interact with the broadcast program.

As noted in page 3, lines 14-16, the client application is either pre-installed on device 109 or downloaded to that device from the Internet. In operation, and as discussed in page 7, line 3 et seq, the client application receives scripts from server 111 which outline the flow of events in the broadcast program, such as presumably when viewers are queried, and the like, and executes on-line events as specified in the scripts. Furthermore, the client application receives timing information, in the form of synchronization cues, from server 111 throughout the broadcast program such that the client application can synchronize its scripts, particularly the viewer events, to the broadcast program and maintain that synchronism throughout the entire broadcast. To that end, the broadcast itself contains a time code, embedded within its vertical blanking interval (VBI). This code is detected by equipment interfaced to control application 112. Once each code is detected, control application 112 suitably passes the time information in that code to server 111 which, in turn, distributes the time information, as a synchronization cue, to client application 412 executing at each client device 109. In order to obtain these cues, each instance of the client application maintains its own real-time socket connection, via the Internet, to server 111 throughout the entire broadcast. See page 9, lines 7-16. Moreover, during the broadcast and as discussed on page 4,

lines 10-12, as the viewers interact with the program through their devices, the server obtains viewer response data (both data relating to the viewers themselves and/or their actions) provided by those devices, aggregates that data, stores resulting aggregated data in a database and then supplies the resulting aggregated data back to a broadcaster of the program.

Since each client application maintains a network connection to server 111 during the entire broadcast, such as to receive scripts and synchronization cues and provide viewer response data back to the server, then, if a substantial number of viewers simultaneously utilize this system, the ensuing communications between the server and all the client devices can congest the network and hence, due to its limited capacity, induce network latency. Such latency, if it is sufficiently large, can prevent timely receipt of some of the synchronization cues at some, if not all, of the client devices and, as a result, prevent proper synchronization from occurring at those devices. Further, as discussed on page 1, lines 28-32 of the present specification, the processing necessary to support such real-time communications load, particularly on an instantaneous basis, i.e. a so-called "peak load", over such a large number of viewers may exceed the capacity of multi-user server 111 and hence cause that server to itself exhibit some degree of processing delay -- which may likely increase as the number of such viewers increases, or if the peak load is too high, simply cause that server to crash.

The present invention advantageously avoids the "peak load" deficiency, with respect to both the network and the server(s), inherent in the approach taught by the 39506 Gresh application.

In sharp contrast to that approach which relies on maintaining a real-time network connection between the server and each viewer device, i.e. an "on-line condition", and supporting real-time communications therebetween throughout the entire duration of a broadcast program, the Applicant teaches the concept of placing all the viewer devices in an "off-line condition", i.e. disconnecting their network connections, during the broadcast including during those times when a client application executing in each viewer device captures and collects data regarding the interaction which its corresponding viewer has with the program and through his(her) device. During those "off-line" times, the client application collects (registers) corresponding viewer data indicative of the interactions. After the broadcast concludes, each viewer device then reconnects itself to the network and transmits its viewer data to a server, here being registration system (see FIG. 1). System 4 then provides this data to score delivery system 5 which in turn processes the data and provides suitable results back to the viewer devices. To prevent system 4 from being overwhelmed by a large number of viewer devices then seeking to connect with it, application download system 3 has previously assigned a particular time slot to each device which specifies a particular time during which that particular device can transmit its viewer data to system 4. See, e.g., page 2, line 27 through page 3,

line 9; and page 3, lines 27-33 of the present specification.

Further, since the client application is itself downloaded from application download system 3 to each client device (6), then to prevent system 3 from being overwhelmed due to peak loading that might otherwise arise prior to the start of a broadcast as a large number of viewers seek to simultaneously download the client application, system 3 permits each viewer to download a portion of the client application, typically a large portion of it, more than a week prior to the broadcast but not within a predefined time interval, such as three hours, immediately prior to the start of the broadcast. See, page 6, lines 24-32 of the present specification. Shortly before the start of the broadcast, each viewer device establishes a network connection with the application download system and downloads the remaining portion of the application program, which contains participant questions, synchronization (timing) information and a designation of the time slot assigned to that device.

As the Examiner can certainly appreciate, the Applicant's approach which relies on disconnecting all the viewer (user) devices (under control of the client application) from the network (i.e., to yield an "off-line" condition) during the program and once that program ends re-establishing these network connections (again under the control of the client application and to produce an "on-line" condition) to download user data to a server (here being registration system 4) drastically differs, in that regard, from the approach taught in the 39506 Gresh

application which explicitly requires that each viewer device maintains a real-time ("on-line") network connection back to its multi-user server (111) throughout the entire broadcast.

There are simply no teachings, disclosure or suggestions whatsoever, whether express or implied, in the 39506 Gresh application as to maintaining a user device in such an off-line (disconnected) condition during a broadcast program and then re-establishing an on-line (connected) condition after the broadcast ceases to download interactive user data which that device captured during the program.

In fact, given the explicit teachings in the 39506 Gresh application directly to the contrary, that application is entirely devoid of any suggestions or motivations which would lead one of skill in the art to the Applicant's present inventive approach. This is not surprising for the simple reason that the problems inherent in the approach taught by that application, to which that application are totally oblivious, are those which the present Applicant now advantageously solves!

New independent method claim 14 contains suitable limitations that clearly and explicitly recite these and other distinguishing features of the present invention. This claim recite as follows, with those recitations shown in a bolded typeface:

"14. A method for implementing a broadcast television program with interactive participation of a plurality of viewers, each of said viewers interacting with the program through a client application executing on a

corresponding one of a plurality of participant devices, all of the devices being capable of connecting to a data network, the method comprising the steps of:

downloading said client application, via the network and from a server connected thereto, to each of the devices in a predefined manner so as to prevent all of the devices from simultaneously downloading the client application over the network and proximate to a starting time of the broadcast;

disconnecting said each device from the network after the broadcast program starts but prior to any interaction occurring by a corresponding one of the viewers with the program and through said each device;

while said each device is disconnected from the network and the program continues to be broadcast:

permitting the corresponding one viewer to interact, through the client application on said each device, with the program and in a manner synchronized to the program; and

registering, through the client application, interactive input provided by the corresponding one viewer to said each device; and

after the program has ceased:

reconnecting said each device to the network;
and

supplying, from said each device and through the client application, the interactive input registered, in said each device and from said corresponding one viewer, to a predefined system on the network for subsequent processing." [emphasis added]

Highly similar distinguishing limitations to those in claim 14 also appear in new apparatus claim 23.

With the above in mind, the 39506 Gresh patent does not teach, show or suggest, whether explicitly or let alone implicitly, the expressly claimed features of:

(a) downloading an interactive client application from a server to client devices in a manner that prevents all those devices from simultaneously downloading that application close to the starting time of a broadcast program;

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(b) during the broadcast program, disconnecting each corresponding user device from the network such that during the broadcast that device collects interactive user data while "off-line"; and

(c) after the broadcast ends, reconnecting each user device to the network such that that device, now in an "on-line" state, can supply (upload), via the client application, its collected interactive user data to a predefined system.

Thus, in the absence of these, among other, claimed features being disclosed, let alone identically, in the teachings of the 39506 Gresh application, the Applicant submits that neither claim 14 nor claim 23 is anticipated by those teachings. Accordingly, both of these claims are patentable under the provisions of 35 USC § 102(b).

Each of new dependent claims 15-22 and 24-25 depends, either directly or indirectly, from new independent claims 14 and 23, respectively, and recites further distinguishing aspects of the present invention over those recited in its corresponding independent claim. Hence, the Applicants submit that each of these new dependent claims is also not anticipated by the teachings of the 39506 Gresh application for the exact same reasons set forth above with respect to claim 14. Consequently, each of these new dependent claims is also patentable under the provisions of 35 USC § 102(b).

Accordingly, this rejection should now be withdrawn.

B. Rejection under 35 USC § 103

The Examiner has rejected prior dependent claim 7 under the provisions of 35 USC § 103 as being obvious over the teachings of the 39506 Gresh application taken in view of those in the '218 Boland et al patent (United States patent 4,484,218 issued to P. Boland et al on November 20, 1984). Inasmuch as this claim has now been canceled, this rejection is moot. Nevertheless, since this claim has been replaced by new claim 19, this rejection will be discussed in the context of that new claim, and particularly with respect to new independent method claim 14 from which claim 19 depends. In that context, this rejection is respectfully traversed.

Specifically, the Examiner takes the position that 39506 Gresh application disclosed all the features of prior claim 7 with exception of teaching the concept of using a time slot for submitting participant input. For that missing teaching, the Examiner turned to the '218 Boland et al patent. Given these teachings, the Examiner apparently concluded that it would have been obvious to one of ordinary skill in the art to modify the teachings of the 39506 Gresh application to include the time slot teachings in the '218 Boland et al patent and thus arrive at the invention as then recited in prior claim 7. As the Examiner will soon see, that conclusion is incorrect with respect to independent claim 14 as well as claim 19.

The Examiner is certainly correct in recognizing that the '218 Boland et al patent, in col. 4, lines 21-26, teaches the concept of transmitting packetized data in time

slots, and particularly there for carrying a multitude of digitized television channels over, e.g., a single DS-1 time-multiplexed transmission link, with each such channel carried during a different time slot.

If this concept were to be hypothetically combined with the teachings in the 39506 Gresh application to yield a single system, then each user device in the resulting hypothetical system would simply send, as the Examiner surmises, its own user data back to multi-user server 111 in a time slot assigned to that device, i.e. at a given predefined time. While this approach distributes the resulting traffic out in time and thus reduces a peak load otherwise potentially experienced by the network and the server, there are no teachings, whether express or implicit, in the '218 Boland et al patent that would indicate when this traffic should be transmitted relative to the broadcast. This omission is clearly expected for the simple reason that the '218 Boland et al patent is directed to uni-directional distribution of cable television (CATV) programs from a head-end location out to subscribers with no provision whatsoever being made to accommodate -- as both the present invention and the 39506 Gresh application do -- user interactivity with any of the programs. Consequently, the hypothetical system would be constrained, in the same manner as the 39506 Gresh application expressly teaches, to maintain a continuous network connection throughout the broadcast, between multi-user server 111 and all of the user devices, and over which the user response data would be transmitted back, in real-time, from each such device to that server. All that would change in the resulting system, by virtue of including the additional teachings of the '218

Boland et al patent, would be that each user device, while still transmitting its user data in real-time during the period of the broadcast, would do so during a particular time slot assigned to that device but occurring some time(s) during that period. Obviously and of necessity, each time slot would need to be sufficiently short such that, from the perspective of server 111, all the user response data would still appear to reach that server in real-time relative to the timing and duration of each user's action.

Therefore, the hypothetical system would be plagued by the same problem inherent in the 39506 Gresh application alone -- namely instantaneous peak loads that potentially overwhelm the network and server and arise out of maintaining a network connection during the entire broadcast between each and every user device and the multi-user server -- a problem which the present Applicant advantageously solved.

As such, the addition of the teachings of the '218 Boland et al patent to those in the 39506 Gresh application would not lead a person of ordinary skill in the art any closer to the present invention than would the teachings in the 39506 Gresh application taken alone, and thus would stop well short of that invention.

New independent claim 14 contains, as noted in the discussion in the prior section immediately above, suitable limitations that clearly and explicitly recite various distinguishing features of the present invention.

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Hence, the Applicant submit that claim 14 is not rendered obvious over the teachings in the 39506 Gresh application and the '218 Boland et al patent, regardless of whether those references are considered singly or in any combination, including that posed by the Examiner. Accordingly, claim 14 is patentable under the provisions of 35 USC § 103.

New dependent claim 19 directly depends from new independent claim 14 and recites further distinguishing aspects of the present invention over those recited in the former claim. Thus, the Applicants submit that this dependent claim is also not rendered obvious by the teachings of the two applied references for the exact same reasons set forth above with respect to claim 14. Consequently, claim 19 is also patentable under the provisions of 35 USC § 103.

Accordingly, this rejection should now be withdrawn as well.

Conclusion

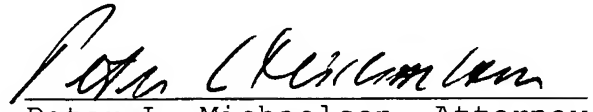
Thus, the Applicant submits that none of the claims, presently in the application, is either anticipated under the provisions of 35 USC § 102 or obvious under the provisions of 35 USC § 103.

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Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

Respectfully submitted,

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Reg. No.



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Marked-up Specification

METHOD AND SYSTEM FOR DIRECTING INTERACTIVE TV GAME SHOWS

[0001] Field of the invention

[0002] The present invention is related to an advanced TV
broadcasting system, in particular to a system for
5 facilitating viewer participation in a TV game show using
the Internet.

[0003] Background of the invention

10 [0004] There is a need to involve TV subscribers more
actively in TV programs. Usually this requires the use of
special network appliances like digital set-top boxes. The
penetration of digital setup boxes ~~in~~into the homes goes
slowly. Therefore, TV producers are looking for other ways
15 to engage viewers in TV programs. Using the Internet to
provide viewers of TV programs with extra information is a
possibility since the Internet is widely available. TV
productions also want to have the viewers interact with the
TV broadcast by using the Internet. The true integration
20 of an on-line Internet event and a TV broadcast presents
program makers with a ~~lot~~considerable number of practical
and technical problems, like the problem of ~~really~~
synchronizing the course of both programs. WO0139506
discloses a system that allows large numbers of
25 participants to engage in on-line, multi-participant shows
that are synchronized to broadcasts of prerecorded or live
shows and also simultaneously aggregates participant input

from such shows and feeds it back into the broadcast. A problem, not addressed by WO0139506, is the limited capacity of the computer networks available for the on-line participation of viewers at home. When all participants would try to interact at the same time, the system could crash due to lack of capacity.

[0005] Problem definition

[0006] Thus the prior art fails to disclose a solution to produce an interactive broadcast where a plurality of TV viewers simultaneously participate actively in the broadcast, while avoiding major operational problems like peak load.

[0007] Aim of the invention

[0008] The aim of the invention is to provide a method of producing an interactive broadcast, where a plurality of TV viewers can actively participate in the broadcast, using a variety of devices, without operational risks such as peak loads during downloading the interactive application or sending in the answers and results.

[0009] Summary of the invention

[0010] The present invention provides a method for directing a broadcast with interaction of a plurality of participants, avoiding capacity problems. This aim is reached by splitting up the downloading and running of the interactive part of the show over time. The part that

requires ~~a lot of~~ significant system capacity, for example,
because it ~~contains a lot of~~ bytes requires a considerable
amount of storage, can be downloaded some time before the
actual broadcast and is not downloaded by all participants
5 at the same time. This has the advantage that a ~~peakload~~
peak-load problem is avoided.

[0011] In a first aspect of the invention a method of
directing a broadcast with participation of a plurality of
10 participants through the use of an interactive application
on a participant device is disclosed, comprising the steps
of:

first downloading the main part of the interactive
application before or during the actual broadcast on
15 the devices of the participant, so that not all
participants download the application at the same
time; the participants can then use the interactive
application off-line on their ~~partiepan~~ participant
device during the broadcast; the answers the
20 participant give are registered off-line on the
device; finally the participant sends his input,
during or after the broadcast.

[0012] The method can also have a step for collecting the
25 individual answers from all participants and analyzing the
answers. The resulting scores can be delivered to both the
individual participants and to the producers of the
broadcast.

[0013] The interactive application may comprise synchronization information. In case the synchronization information is not known at the time of download or changes after download, the participant can also separately
5 download the synchronization information shortly before the broadcast, or when the broadcast has already started. Since the synchronization information does not form a big part of the interactive application, and will only comprise a limited amount of Kbits of information to be downloaded,
10 this will still not lead to ~~peakload~~peak-load problems, even when more participants are downloading this part at the same time.

15 [0014] To avoid ~~peakload~~peak-load problems at the end of the broadcast, when all participants will send in their answers, is advantageous to include in the interactive application, that will be downloaded, information about a time slot, during which the application is allowed to send
20 in the answers from the participant. This time slot could be ~~a period~~ a period of time during or after the broadcast.

[0015] An Internet site might be used for facilitating the downloading of the interactive application, which the
25 participant can use with a device that is capable of interacting through the Internet, for example a personal computer, a small Internet enabled device, like a PDA or a mobile phone capable of communication via the Internet, using e.g., WAP, UMTS or any other suitable protocol. The

participant could also use his TV set to download the interactive application.

5 [0016] The invention also relates to systems that are used to carry out the method for directing an interactive broadcast.

[0017] Brief description of the drawings

10 [0018] The invention will be explained in greater detail by reference to exemplary embodiments shown in the drawings, in which:

15 [0019] Fig. 1 shows a system diagram of an exemplary embodiment of the invention.

[0020] Fig.2 shows a flow chart according to an exemplary embodiment of the invention.

20 [0021] Detailed description of the invention

25 [0022] For the purpose of teaching of the invention, preferred embodiments of the method and system of the invention are described in the sequel. It will be apparent to the person skilled in the art that other alternative and equivalent embodiments of the invention can be conceived and reduced to practice without departing from the true spirit of the invention, the scope of the invention being limited only by the appended claims.

[0023] Fig 1 shows a system (1) for directing the interactive part of a broadcast show. The system is connected to the participants at home (6) via a communications network (2), e.g., the Internet. The system comprises three subsystems, the application download system (3), the registration system (4) and the score delivery system (5). The application download system (3) comprises one or more proxy servers (31) to communicate with the participants and one or more ~~web servers~~ web servers (32) for providing information about the broadcast show and facilitating downloading of the application. The registration system (4) comprises one or more proxy servers (41) to communicate with the participants, one or more CGI servers (42) to execute the registration process of participant details and results and providing the results from the database (43) to the score delivery system (5), and one or more databases (43) for storing participant details and results. The score delivery system (5) comprises one or more mail servers (51) for sending the participant scores by email to the participants (52) and to the broadcast studio (53). The participants at home (6) use a device capable of communicating through the Internet, e.g., a personal computer or a mobile phone.

[0024] The invention will be further explained with reference to the flowchart of Fig. 2.

[0025] The invention relates to broadcast shows that have been recorded some time before the show is actually broadcasted. Some time before the actual broadcast of the show, the potential audience is informed about the intended broadcast of the show with special commercial messages. In these messages the audience is also informed of the fact that the TV viewers at home can participate in the show, and they are referred to the relevant Internet site of the show on the system (1).

[0026] On the Internet site the participant receives further information about the show and the interactive part of it, step a. If the participant decides that he would like to participate during the broadcast of the show he requests a registration form in step b. An HTML or flash registration page is sent to the participant (step c) and in step d the participant enters his personal information, including but not limited to his email address in registration system (4). On reception of the participant information a participant entry is made in the database (43) and a password is sent to the participant, step e. The advantage of registering all potential participants in registration system (4) is that the necessary capacity for equipment can be taken care of in advance, and in the event too many participants try to register, the production company can decide to close registration, or in the event only a limited number of people register themselves as participants the commercial messages with regard to the show can be repeated once more.

[0027] The participant can now decide to download the Internet application installation package from the download application system (3), and run the installation, step f. This installation package includes the heavy part of the application. By providing the possibility to download this part of the software more than a week before the actual broadcast the potential participants will not download the software simultaneously, avoiding a peak load problem shortly before the start of the show.

[0028] The possibility to download the Internet application is closed approximately 3 hours before the start of the show.

[0029] Registered participants are asked to log on into the Internet application of the game show during the last three hours before the show is scheduled to start, step g. The TV game show has been recorded by then, and all timing details are known. After validation of participant name and password, in step h-i, the participant receives in step i-h the ~~participant code~~ participant code and the URL link to now download the last part of the application from application download system (3), containing the questions, the synchronization information and a time slot for submitting the answers after the show. After the participant has downloaded this part of the application, and has disconnected from the Internet, the off-line count down to the start of the broadcast of the show starts, step j. Exactly at the same time the TV broadcast and the now local off-line application start. The participant can

view the show, participate and fill in his answers to the questions, at exactly the same time as the contestants in the show on TV. The answers to the questions are recorded locally on the participant's device.

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[0030] After the show is ended the participant can submit his answers after the final question, step k. Again to avoid peak load at the end of the show, when all participants might sent in their results at exactly the same time, the local interactive application received a time slot during download. This means that the exact moment of submitting the results is directed in the software to avoid peak load and possible subsequent crashing of the system.

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[0031] The next step (l) is registration system (4) saving the results of the participants at home in the database (43), and score delivery system (5) calculating their personal results and sending a "thank you" message with the results to the participants, step m. In the next step (n) the results and scores of all participants are processed by score delivery system (5) in the format requested by the producer of the show, so that the results of the home participants can be compared with the results of the contestants in the studio.

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